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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/798,707

03/11/2004

Alexander Reznik

I-2-0489.1US

6208

24374 7590 12/09/2008

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EXAMINER

MALEK, LEILA

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

12/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,707	Applicant(s) REZNIK ET AL.	
	Examiner LEILA MALEK	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-13 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-13 and 16-19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/09/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 and 10 have been considered but are moot in view of the new ground of rejection.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4 and 7-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claims do not positively tie the claimed subject matter to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1-4, 7-13, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong et al. (hereafter, referred as Jeong) (US 6,725,016), in view of Rege et al. (hereafter, referred as Rege) (US 6,532,222).

As to claims 1 and 10, Jeong discloses a wireless communication method for assigning multi-paths to Rake receiver fingers (see the abstract, column 1, lines 8-12, and column 2, lines 42-47), the method comprising: establishing a Rake finger assignment database (see the abstract and column 2, last paragraph); categorizing a plurality of multi-path signals in the database into a verified group (the states of "Assigned" and "Potential" have been interpreted as a verified group, because for multi-paths in "Assigned" and "Potential" states the SNR value must be higher than a threshold over N_ACCEPT consecutive times (i.e. interpreted as detection of a multi-path more than once)) (see Fig. 4, column 5, lines 24-50, and column 7, lines 24-40) and an unverified group (i.e. the "Temporary" state), wherein the verified group includes multi-path signals that have been detected more than once and the unverified group includes multi-path signals that have not been detected more than once; categorizing the multi-path signals in the verified group into an assigned subgroup (i.e. the "Assigned" state) and an unassigned subgroup (i.e. the "Potential" state), wherein each of the multi-path signals in the assigned subgroup is assigned to a Rake receiver finger and each of the multi-path signals in the unassigned subgroup is not assigned to a Rake receiver finger (see column 6, lines 16-22). Jeong further discloses that each multi-path signal is assigned a respective bin in the database that includes a data structure having a verification flag data field (see column 9, lines 10-20). Furthermore,

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Jeong teaches comparing each newly measured multi-path signal to the multi-path signals in the database to determine if each newly measured multi-path signal is found in the database (see the abstract and column 2, last paragraph). Jeong does not expressly disclose that if a multi-path signal in the data base that belongs to the unassigned subgroup matches a newly measured multi-path signal, setting the flag such that it indicates that the multipath signal is verified. Since Jeong teaches categorizing a multi-path signal, by using a flag (see column 9, lines 10-20), under a verified group (the states of "Assigned" and "Potential"), if it has been detected more than once, he inherently teaches that if a multi-path signal in the data base that belongs to the unassigned subgroup (i.e. the "Potential" state) matches a newly measured multi-path signal (it means that the multi-path signal has been detected more that once), setting the flag (i.e. changing the state of the signal) such that it indicates that the multipath signal is verified. Jeong teaches all the subject matters claimed in claims 1 and 10, except that there is a pilot phase data field for each multi-path signal. Jeong also does not disclose updating the relative phase of the multi-path signal in the pilot phase data field. Rege, in the same field of endeavor, discloses a wireless communication apparatus for assigning multi-paths to rake receiver fingers (see the abstract). Rege discloses that the apparatus includes a live set database for creating and updating entries corresponding to phases of active pilot (multi-path) signals that have been assigned to rake fingers (see column 4, lines 51-57). Rege further includes that the database 110 includes a plurality of entries that correspond to phases of active pilot signals at which multi-paths are believed to be present, wherein each entry

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includes at least a respective data field for phase parameter 202 (see Fig. 2, block 202). It would have been obvious to one of ordinary skill in the art at the time of invention, to modify Jeong as suggested by Rege to have phase information for each multipath and improve the signal to noise ratio and therefore improve the communication quality (see column 2, last paragraph and column 7, lines 32-61).

As to claims 2 and 11, Jeong further discloses (d) comparing the signal strength of each multi-path signal to a predetermined noise floor threshold; and (e) if the signal strength of the multi-path signal is less than the noise floor threshold, removing (rejecting) the multi-path signal from the database (See the abstract and column 5, lines 51-60).

As to claims 3 and 12, Jeong further discloses that if the removed multi-path signal is categorized in the assigned group, the Rake receiver finger is no longer assigned to the removed multi-path signal (see Fig. 4).

As to claims 4 and 13, Jeong further discloses receiving a plurality of newly measured multi-path signals, during a measurement interval; comparing each newly measured multi-path signal to the multi-path signals in the database to determine if each newly measured multi-path signal is found in the database; and if a newly measured multi-path signal is not found in the database, adding the newly measured multi-path signal to the database (see the abstract and column 2, last paragraph).

As to claims 7 and 16, Rege, discloses a finger assignment logic that confirms the presence and quality of a multi-path before assigning a parallel finger to that multi-path (see the abstract and column 1, first paragraph). Rege further discloses a pending-

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set database 110 (see column 6, last paragraph), which includes a plurality of entries that correspond to phases of active pilot signal at which multi-paths are believed to be present. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Jeong as suggested by Rege to enhance the signal-to-noise ratio of the combined demodulated paths in a rake receiver and as the result improve the quality of the wireless communication (see column 7, lines 32-61).

As to claims 8 and 17, Rege discloses a finger assignment logic that confirms the presence and quality of a multi-path before assigning a parallel finger to that multi-path (see the abstract and column 1, first paragraph). Rege further discloses a pending-set database 110 (see column 6, last paragraph), which includes a plurality of entries that correspond to phases of active pilot signal at which multi-paths are believed to be present, wherein each entry includes a power parameter 204. Rege discloses that the power parameter is the averaged normalized power measured at that phase (see column 9, last paragraph). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Jeong as suggested by Rege to enhance the signal-to-noise ratio of the combined demodulated paths in a rake receiver and as the result improve the quality of the wireless communication (see column 7, lines 32-61).

As to claims 9 and 18, Rege discloses a finger assignment logic that confirms the presence and quality of a multi-path before assigning a parallel finger to that multi-path (see the abstract and column 1, first paragraph). Rege further discloses a pending-set database 110 (see column 6, last paragraph), which includes a plurality of entries that correspond to phases of active pilot signal at which multi-paths are believed to be

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present, wherein each entry includes a pointer 210. Rege discloses that the pointer 210 indicates which, if any, demodulator 102 (finger) is assigned to the phase corresponding to that entry. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Jeong as suggested by Rege to enhance the signal-to-noise ratio of the combined demodulated paths in a rake receiver and as the result improve the quality of the wireless communication (see column 7, lines 32-61).

As to claim 19, Rege further discloses that the system is a timeslot-based system and the measurement interval occurs on a frame-by-frame basis (see column 11, lines 21-26). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Jeong as suggested by Rege to enhance the signal-to-noise ratio of the combined demodulated paths in a rake receiver and as the result improve the quality of the wireless communication (see column 7, lines 32-61 and column 12, lines 8-21).

Allowable Subject Matter

4. Claim 20 is allowed. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 20, a comprehensive search of prior art of record failed to disclose, either alone or in combination, an apparatus comprising: (a) a processor which includes a path search scheduler for receiving signals from higher layers and generating scheduling data; and (b) a memory device in communication with the processor, wherein the memory device has a first portion for receiving the scheduling data and storing the results of a pilot path search process performed by the path search

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scheduler, and a second portion for storing the results of a pilot strength measurement (PSM) process running on the processor, wherein the processor implements a path position detection process and a finger assignment process for providing an assignment to a Rake finger pool, the path position detection process searching for all multi-paths for a plurality of wireless transmit/receive units (WTRUs) in a round-robin search order; and (c) a path search vector correlator (VC) grid for receiving data from the first portion of the memo~ device and providing an output which is evaluated by the PSM process to generate evaluation results which are stored in the second portion of the memory device for access by the path position detection process.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leila Malek whose telephone number is 571-272-8731. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leila Malek
Examiner
Art Unit 2611

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Examiner, Art Unit 2611

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